

ABSTRACT OF THE DISCLOSURE

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A C-shaped cross-section latex tube implant for reduction of intraocular pressure. A proximal end serves as a conduit for aqueous humor to bypass angle structures in the eye. A distal end serves as a nidus for the patient's cells to form a capsule on.

5 Inflation of the cellular capsule forms a tube for conduction of aqueous humor and filters this fluid into the extracellular space under the conjunctiva. A series of lateral portions of the distal tube are removed. A ligature is tied to each of the remaining whole cylindrical portions whereby flow through the whole cylindrical portions is prevented. An anchor comprises a split end of the tube wherein the end of the tube is split multiple times such as a bifurcation. The nidus comprises a portion extending outwardly from the exposed interior of the tube. This portion has a cross section in the form of a wavy closed curve. The method comprises the steps of implanting the distal portion of the cylindrical tube under the conjunctiva and anchoring the distal end of the cylindrical tube to the sclera at the limbus; inserting the proximal, intact end of the tube into the anterior chamber through a needle track; ligating the proximal end to prevent hypotony; allowing time for a capsule to grow around the tube; and, releasing a ligature around the proximal end to inflate a bleb; measuring the intraocular pressure to determine if additional drainage is required; if



Glossary:

Bleb - Blister-like fluid-filled cavity.

5 Ligature - suture tied in a knot, used to occlude or anchor a structure during surgery.

Hypotony - low pressure in the eye, brings danger of retinal detachment and decompression of eyeball.

10 Seton - fluid leakage following surgical intervention and breaching the anterior chamber of the eye.

Proximal - intact portion of cylindrical implant that enters the anterior chamber through the limbus.

Distal - portion of implant farthest from the anterior chamber and source of aqueous humor.

15 Nidus - inert substrate that provides a platform for cell growth.

Fibrosis - formation of fibrous tissue composed of fibroblasts and extracellular matrix composed largely of collagen, cellular basis of scar tissue.

20 Conventional accessory filtration device - various implants introduced by ACB Molteno, George Baerveldt, Theodore Krupin (ACSEB - Anterior Chamber Shunt to Encircling Band); all have a tubular connection that bypasses the limbus and ends in a large surface area plate of band around which forms a relatively thick walled capsule that, when inflated, forms a large elevated bleb  
25 that filters aqueous humor. These devices often interfere with

function of extraocular muscles and fail to control intraocular pressure when fibrosis compromises their ability to filter aqueous humor.

Prior art of low-volume, high surface-area, cylindrical implants

30 - hypothesis for formation of a small diameter cylindrical implant to treat glaucoma, published in 1994, reduced to practice in 1998, tested in animals and published in Feb 2000. This device has a thinner capsule than any device previously reported and has a proportionately higher hydraulic conductivity of its capsule than other implants previously reported.

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